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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,940

Applicant(s)

NASSI ET AL.

Examiner

Jeremy C. Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-38 is/are pending in the application.
- 4a) Of the above claim(s) 36-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-27 and 35 is/are rejected.
- 7) ☒ Claim(s) 28-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 20-23, 27, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,262,375 (hereafter Engelhardt).

Engelhardt discloses, referring to figures 1 and 2, a superconducting cable having at least one phase comprising: a) a layer of tapes (120); b) a tubular element (110) for supporting said layer of tapes, said tubular element comprising at least one portion made of metallic material (see col. 4, lines 35-40), and being in electrical contact with the layer of tapes; c) a cooling circuit, configured to cool the layer of tapes to a working temperature not higher than its critical temperature, comprising a fluid (100) at a predetermined working pressure ranging between a minimum value and a maximum value (see col. 4, lines 35-45); wherein deformation of the layer of tapes, consequent to a temperature variation between room temperature and the working temperature is lower than critical deformation of the layer of tapes; and, predetermined amount of conductive material of resistive type in electrical contact with the layer of tapes, the conductive material being configured to cause a maximum

temperature reached by the layer of tapes in case of a short circuit to be lower than the lesser of the critical temperature of the superconducting material comprising the layer of tapes and the boiling temperature of said cooling fluid at a minimum working pressure of said fluid (see col. 5, lines 1-20) [claim 20], wherein said layer of tapes is incorporated within a metallic coating (see col. 7, lines 60-55 and col. 7, lines 25-30) [claim 21], wherein said superconducting material comprises at least one reinforcing foil made of metallic material [claim 22] wherein said superconducting material comprises two reinforcing foils made of metallic material coupled to opposite faces of said layer [claim 23], wherein the reinforcing foil and the metallic coating of said tapes comprising superconducting material is a metal selected from the group consisting of copper, aluminum, silver, magnesium, nickel, bronze, stainless steel, beryllium, and alloys thereof (see col. 6, lines 65-69) [claim 27].

Similarly, Engelhardt discloses, referring to figures 1 and 2, a conductive element for superconducting cables comprising at least one layer of superconducting material (120) incorporated within a metallic coating (see col. 4, lines 60-65 and col. 7, lines 25-30) supported by a tubular element (110) comprising a predetermined amount of metallic material (see col. 4, lines 30-40) with which the layer is in electrical contact, said layer of superconducting material being cooled by means of a cooling fluid (100) to a temperature not higher than the cooling fluid's critical temperature, wherein a predetermined amount of conducting material of resistive type (150, see col. 5, lines 30-35) is present in electrical contact with the layer of superconducting material, such that a maximum temperature reached by the superconducting material in case of short

circuit is lower than a minimum temperature between the critical temperature of the superconducting material and boiling temperature of said cooling fluid at minimum working pressure of said fluid (see col. 5, lines 1-20) [claim 35].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engelhardt in view of US 4,336,420 (hereafter Benz).

Engelhardt discloses the claimed invention as described above with respect to claims 22 and 23 except Engelhardt does not specifically state that the conducting material is essentially pre-stressed along a longitudinal direction [claim 24]. However, it is well known in the art to pre-stress superconductor tapes as evidenced by Benz (see

col. 6, lines 30-40. Therefore it would have been obvious, to one having ordinary skill in the art, at the time of invention, to pre-stress the tapes in the invention of Engelhardt as known in the art and evidenced by Benz. The motivation for doing so would have been to limit the elastic deformation to this pre-stress and minimize the deformation energy that is transformed into heat. Furthermore, it would have been an obvious matter of design choice to pre-stress along a longitudinal direction (y) to a degree of between 0.05 and 0.2% [claim 25]. Moreover, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Engelhardt in view of US 6,255,595 (hereafter Metra).

Engelhardt discloses the claimed invention as described above with respect to claim 20, except Engelhardt does not specifically state that cable comprises a plurality of tapes comprising superconducting material spirally wound on the surface of said at least one supporting tubular element, said tapes having winding angles of between 5 and 60 degrees. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to wind the tapes in such a manner since it is well known in the art to do so, as evidence by Metra (see col. 3, lines 20-25). The motivation for doing so would have been to minimize mechanical stresses internal to the cable.

Response to Arguments

Applicant's arguments filed 15 August 2003 have been fully considered but they are not persuasive. Applicants contend that "Consequently, a predetermined amount of conductive material separate from the support tube is not disclosed or suggested by Engelhardt, much less a predetermined amount of conductive material of resistive type in electrical contact with the layer of tapes configured to cause a maximum temperature reached by the layer of tapes in case of a short circuit to be lower than the lesser of the critical temperature of the superconducting material and the boiling temperature of the cooling fluid." Addressing the second part first, Engelhardt clearly discloses "a predetermined amount of conductive material of resistive type in electrical contact with the layer of tapes" as is described in col. 5, lines 2-3. As defined by Applicants, a "conductive material of resistive type", simply is a non-superconducting conducting material. Engelhardt clearly discloses the tube to comprise copper, a material fitting Applicants' definition. Furthermore, Engelhardt discloses that the superconductor is to be maintained "at a temperature of about two-thirds of its critical temperature" (col. 4, lines 45-55) and additionally, that the superconductor "comprises a lead stabilized bismuth based superconductor clad with silver having a critical temperature of about 110K" (col. 7, lines 25-30). Moreover, Engelhardt discloses the cooling fluid, liquid nitrogen, to have a boiling temperature higher than 85 K (col. 2, line 45-50). Simple mathematics shows that Engelhardt discloses maintaining a temperature of about 73 K, even during short circuit. This temperature is clearly less than both the boiling temperature of the cooling fluid and the critical temperature of the superconductor.

Therefore, Applicants' only remaining argument is that Engelhardt does not disclose or suggest "a predetermined amount of conductive material of resistive type *separate* from the support tube" (emphasis added). However, this argument is moot due to the fact that nowhere in the claimed invention is there mention that said conductive material be *separate* from the support tube. This is not a limitation that exists in the pending claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Examiner suggests that if Applicants feel that this separation is a vital part of the invention that Applicants positively claim this limitation as part of the invention.

Having addressed Applicants' argument, the traversal of the outstanding rejection on these grounds is deemed unsuccessful.

Allowable Subject Matter

Claims 28-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claim 28 states the limitation "wherein said tubular element is a composite and comprises a first metallic material and a second material associated to said first material having a thermal expansion coefficient higher than that of said first material". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Tuesday - Friday, 10am - 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN



**EVAN PERT
PRIMARY EXAMINER**